Ref.: CM0__26EI/GBRI/PGS/Rozental

11

Claims

1. A Cartesian loop transmitter (100) comprising a
    forward path (102) and a feedback path (104), each
    of these paths comprising an I-channel and a Q-
    channel, as well as an isolator eliminator (106)
    characterized in that said transmitter (100)
    comprising:
    a) a first low pass filter (138) and a first band
       pass filter (140) connected to I-channel at LP2;
    b) a second low pass filter (142) and a second band
       pass filter (144) connected to Q-channel at LP2;
    c) a first root mean square detector (146) collecting
       signal from said first low pass filter (138) and
       from said second low pass filter (142);
    d) a second root mean square detector (148)
       collecting signal from said first band pass filter
       (140) and from said second band pass filter (144);
    e) a divider (150) connected to said first and said
       second root mean square detectors (146 and 148);
    f) a comparator (152) connected to said divider
       (150); and to
    g) a microprocessor (154) connected to an input
       attenuators (108) and (110) on said I- and Q-
       channels.

2. The Cartesian loop transmitter (100) of claim 1
    wherein a memory (156) is connected to said
    microprocessor (154).

3. A method of adjusting an output level of a Cartesian
    loop transmitter (100) in a digital radio system,
    the method comprising the steps of:

Ref.: CMO 26EI/GBRI/PGS/Rozental

12

    a) applying a factory predefined attenuation setting
      (202) for adjusting said output level if
      attenuation setting for a previous slot is not
      available (200), or

5   b) applying said attenuation setting obtained in
      previous (204) slot for adjusting said output
      level in a current slot;

    c) measuring an on-channel baseband signal level
      (206) at LP2;

10   d) measuring a noise level (208) at predefined
      frequency offset at LP2;

    e) calculating a ratio (214) of said noise level to
      said on-channel baseband signal level; and

    f) if said ratio is above a threshold (216)

15   increasing an attenuation setting (218) of an
      input signal;

    g) storing (222) said attenuation setting in a
      memory.

20 4. The method according to claim 3 wherein steps c)
     through g) are repeated in a loop until said ratio
     is below said threshold.

    5. The method according to claim 3 or 4 wherein for
25   determining said ratio a root mean square of said
     on-channel baseband signal level (210) and a root
     mean square of said noise level (212) are taken.

    6. The method according to any one of claims 3 to 5
30   wherein after increasing said attenuation setting a
     delay is applied (220) to execution of software,
     which based on next samples, calculates said ratio
     and increases said attenuation setting.

13

Ref.: CMO^26EI/GBRI/PGS/Rozental

13

7.   The method according to any one of claims 3 to 6,
     wherein in said step of storing said baseband signal
     level and said noise level measured at LP2 are
     stored in said memory.

5

8.   A radio transmitter according to any one of claims 1
     to 2 and which is operable to provide communications
     in at least TETRA and/or GSM and/or IDEN
     communication systems.

10

9.   A radio communication device incorporating a circuit
     according to any one of claims 1 to 2.

10. A radio communication device operating in accordance

15   with a method according to any one of claims 3 to 7.